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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,745	08/09/2006	Jurgen Legner	ZAHFRI P877US	4462

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EXAMINER	
NOLAN, PETER D	

ART UNIT	PAPER NUMBER
3661	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,745	LEGNER, JURGEN	
	Examiner	Art Unit	
	Peter D. Nolan	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/9/2006, 12/15/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements filed 8/9/2006 and 12/15/2006 have been received and placed of record in the file.

Specification

The disclosure is objected to because of the following informality:

In paragraph 8, line 13, the word “dirving” should be corrected to “driving”.

Claim Rejections - 35 USC § 112 1st Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The basis of this rejection is the lack of drawing(s) and sufficient disclosure in the specification detailing the structure of the system claimed in claims 12, 13. The connections between the driving device / clutch / power consuming device / torque

determining means / hydrodynamic torque converter are not described with sufficient detail to enable one skilled in the art to make and use the invention claimed without undue experimentation. For example, it is unclear exactly where the clutch is located (i.e. is it located before the transmission but after the hydrodynamic torque converter, or is it located after the transmission but before a driveshaft connected to the driving wheels).

This rejection also affects dependent claim 14.

Claim Rejections - 35 USC § 112 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, the “device” used to determine the deceleration request on line 4 and the "another device" used to decelerate the vehicle on line 5 are indefinite because they do not particularly point out which devices are being used (i.e. the devices previously presented in the claim, the clutch device or the power consuming device, or other devices such as a brake pedal sensor, pressure sensor or a service brake). For the purposes of examination, it is assumed that the “device” on line 4 refers to a brake pedal sensor or a pressure sensor. It is further assumed that the "another device" on line 5 refers to a service brake.

This rejection also affects dependent claims 16-22.

Claim Rejections - 35 USC § 112 6th Paragraph

Claim element "torque-determining means" in claim 12 is a means plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

This rejection also affects dependent claims 13, 14.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification,

perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 12-14, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Fonkalsrud et al. (US 6560549 B2) and Rieger et al. (US 7025708 B2).

3. **Regarding claims 12 and 23**, Applicant's admitted prior art teaches a device for controlling functions of a vehicle having a driving motor connected, via a clutch device, to a power-consuming device and also to driving wheels (**see Applicant's specification paragraph 7 describing the drivetrain of a work machine**), the device comprising: a device for decelerating the vehicle; a device for determining a deceleration request, and the clutch device being one of engaged and disengaged depending on the deceleration request (**see Applicant's specification paragraph 7 where the wheel loaders comprise a control function where the driving clutch is opened upon actuation of the service brake**).

4. However, Applicant's admitted prior art does not teach where the system further comprises: a torque-determination means (claim 12), or device (claim 23), for

determining the input torque of the clutch device and for actuating the clutch device as a function of the input torque and the deceleration request.

5. Fonkalsrud teaches where torque determining means for the input torque of a transmission may comprise a controller calculating the input torque to a transmission from the characteristics of a torque converter including: a rotational speed of the pump wheel, the rotational speed of the turbine wheel and a characteristic rotational speed line of the hydrodynamic torque converter (**see Fonkalsrud column 3, lines 42-62 where a converter output torque is determined as: Converter Output Torque = Primary Torque*Torque Ratio*(Input Speed/Output Speed)^2**).

6. Rieger teaches where a driving clutch may be engaged or disengaged as a function of the input torque to the clutch and a deceleration request (**see Reiger column 3, lines 13-22 and column 4, lines 32-49. See also column 3, lines 30-35 teaching where the input shaft of the clutch is connected to the output shaft of the engine because "the rotational speed differential across the clutch can be determined from the rotational speed differential between the engine shaft and the transmission input shaft". Therefore the input torque of the clutch is directly related to the output torque of the engine which is one of the parameters in Reiger (see column 2, lines 58-61)**).

7. It would be obvious to one skilled in the art to modify Applicant's admitted prior art with the clutch control taught in Rieger because this allows the clutch torque to be reduced at a high speed when there is a danger of an engine stalling (**see Rieger column 2, lines 29-38**). Although the clutch in Rieger is for an automated manual shift

transmission, the function of the clutch is the same as the clutch in Applicant's admitted prior art, i.e. disconnecting the driving motor from the driving wheels.

8. It would further be obvious to modify Applicant's admitted prior art, as modified by Rieger, so that the input torque to the clutch is calculated using the means in Fonkalsrud because this would provide a more accurate value of the clutch input torque than the engine torque used in Rieger.

9. **Regarding claim 13**, Applicant's admitted prior art, as modified by Rieger and Fonkalsrud in claim 12, teaches where a hydrodynamic torque converter is located between the clutch device and the driving motor and comprises a pump wheel and a turbine wheel, the input torque is determined from a rotational speed of the pump wheel, the rotational speed of the turbine wheel and a characteristic rotational speed line of the hydrodynamic torque converter (**see the rejection of claim 12 above**).

10. **Regarding claim 14**, Applicant's admitted prior art, as modified by Rieger and Fonkalsrud in claim 12, does not teach where the deceleration request is determined from a position of one of a brake pedal and a braking pressure.

11. Rieger further teaches where the deceleration request is determined from the braking pressure.

12. It would be obvious to one skilled in the art to determine the deceleration request from the braking pressure, as taught in Rieger, because it is well known in the art that this would be indicative of the magnitude of the deceleration request.

13. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Rieger et al. (US 7025708 B2).

14. **Regarding claim 15**, Applicant's admitted prior art teaches a method for controlling functions of a vehicle having a driving motor driving, via a clutch device, a power-consuming device and also driving wheels (**see Applicant's specification paragraph 7**), the method comprising the steps of: determining a deceleration request via a device (**see Applicant's specification paragraph 7 where the actuation of the service brake is detected. This inherently involves a device to detect the actuation of the service brake**); decelerating the vehicle with another device (**see Applicant's admitted prior art paragraph 7, service brake**); one of engaging and disengaging the clutch device as a function of the deceleration request (**see Applicant's admitted prior art paragraph 7 where the driving clutch is opened upon actuation of the service brake**).

15. However, Applicant's admitted prior art does not teach determining an input torque of the clutch device with a torque-determining device and actuating the clutch device as a function of the input torque and the deceleration request.

16. Riegler teaches a method of engaging / disengaging a driving clutch that comprises determining an input torque of the clutch device with a torque-determining device and actuating the clutch device as a function of the input torque and the deceleration request (**see Reiger column 3, lines 13-22 and column 4, lines 32-49. See also column 3, lines 30-35 teaching where the input shaft of the clutch is connected to the output shaft of the engine because "the rotational speed differential across the clutch can be determined from the rotational speed differential between the engine shaft and the transmission input shaft".**

Therefore the input torque of the clutch is directly related to the output torque of the engine which is one of the parameters in Reiger (see column 2, lines 58-61)).

17. It would be obvious to one skilled in the art to modify Applicant's admitted prior art with the clutch control taught in Rieger because this allows the clutch torque to be reduced a high speed when there is a danger of an engine stalling (**see Rieger column 2, lines 29-38**). Although the clutch in Rieger is for an automated manual shift transmission, the function of the clutch is the same as the clutch in Applicant's admitted prior art, i.e. disconnecting the driving motor from the driving wheels.

18. **Regarding claim 16**, Applicant's admitted prior art, as modified by Riegler in claim 15, teaches where the method further comprises the step of, above a defined deceleration request and above a defined input torque, disengaging the clutch device (**see Riegler column 3, lines 3-6 and column 4, lines 6-28**).

19. **Regarding claim 17**, The method for controlling functions of the mobile vehicle according to claim 15, further comprising the step of, when the deceleration request is recognized, determining the input torque (**see Riegler column 3, lines 13-22**).

20. **Regarding claim 18**, Applicant's prior art, as modified by Riegler in claim 15, teaches where the method further comprises the step of, in an event of low input torque with a low deceleration request, disengaging the clutch device, and in an event of a high input torque with a larger deceleration request, disengaging the clutch device (**see Riegler column 2, lines 46-53; column 2, line 58 thru column 3, line 6; and column 3, lines 13-22**).

21. **Regarding claim 19**, Applicant's prior art, as modified by Riegler in claim 15, teaches where the method further comprises the step of proportionalizing the deceleration request to one of a brake pedal path and a braking pressure (**see Riegler column 2, lines 39-46**).

22. **Regarding claim 20**, Applicant's prior art, as modified by Riegler in claim 15, teaches where the method further comprises the step of determining the input torque upon a first detection of the deceleration request (**see Riegler column 3, lines 13-15**), that a previously defined deceleration request is associated with the input torque which, when exceeded, will result in disengagement of the clutch device (**see Riegler column 3, lines 13-17**).

23. Claims 21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Rieger et al. (US 7025708 B2) and further in view of Smart (US 2003/0205930 A1).

24. **Regarding claim 21**, Applicant's prior art, as modified by Riegler in claim 15, does not teach where the method further comprises the step of detecting of the deceleration request prior to actuating service brake.

25. Smart teaches a brake-by-wire system where a deceleration request is detected prior to actuating a service brake (**see Smart paragraphs 22-23**).

26. It would be obvious to one skilled in the art to add the function of the brake-by-wire system to the method taught in Applicant's prior art, as modified by Riegler in claim 15, because brake-by-wire systems are well known in the art (**see Smart paragraph 22**).

27. **Regarding claim 22**, Applicant's prior art, as modified by Riegler in claim 15, does not teach where the further comprises the step of actuating a service brake starting with a defined deceleration request.

28. Smart teaches a brake-by-wire system where the service brake is actuated starting with a defined deceleration request (**see Smart paragraphs 22-23**).

29. It would be obvious to one skilled in the art to add the function of the brake-by-wire system to the method taught in Applicant's prior art, as modified by Riegler in claim 15, because brake-by-wire systems are well known in the art (**see Smart paragraph 22**).

Conclusion

Any inquiry concerning this or any earlier communication from the examiner should be directed to Examiner Peter Nolan, whose telephone number is 571-270-7016. The examiner can normally be reached Monday-Friday from 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black, can be reached at 571-272-6956. The fax number for the organization to which this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D Nolan/

Examiner, Art Unit 3661

4/11/2009

/Thomas G. Black/

Supervisory Patent Examiner, Art Unit 3661